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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,466	01/20/2006	Craig N. Schubert	63149A	9819

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EXAMINER	
WU, IVES J	
ART UNIT	PAPER NUMBER
1776	

NOTIFICATION DATE	DELIVERY MODE
06/15/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

FFUIMPC@dow.com

Office Action Summary	Application No.	Applicant(s)	
	10/565,466	SCHUBERT ET AL.	
	Examiner	Art Unit	
	IVES WU	1776	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-9,11 and 13-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-9,11,13-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

(1). Applicants' Request-for-Continued Examination (RCEX), amendments and Remarks filed on 11/19/2010 have been received.

Claims 1-4, 10 and 12 were cancelled before.

Claim 8 is amended.

An Office Action in response to the RCEX follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(2). **Claims 8-9, 5-6** and **13-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakravarti et al (US 6497852B2) in view of Rønning et al (US 5832712A).

As to a regeneration process for an aqueous, acid gas-rich absorption Fluid comprising at least one nitrogen-based chemical absorbing agent for an acid gas which absorption fluid contains a chemically absorbed acid gas comprising a) hydrogen sulfide, b) carbon dioxide or c) both of gases, process comprising 1) stripping acid gas from the acid gas-rich absorption fluid in a pressure vessel operated at essentially a single pressure in excess of about 50 *psia* and below about 300 *psia,* Wherein heat is supplied to the Fluid in the Vessel by a re-boiler in a sufficient quantity that the fluid is at a temperature from 294° F and below 400° F, and thereafter 2) recovering an acid gas-rich gas stream from vessel while maintaining the stream under pressure

and 3) introducing gas stream into a 1st stage compressor and 4) thereafter reducing by compression the volume of gas stream in **independent claim 8**, where the gas stream is, after compression, disposed by injection to an ocean- or sea-bed or into a subterranean chamber or formation in **claim 9**, where at least one Agent in the treatment Fluid is an alkanolamine comprising 2 to 6 carbon atom in **claim 5**, where at least one agent selection in **claim 6**, wherein the stripping acid gas from the acid gas-rich absorption Fluid takes place in a pressure Vessel at a pressure in excess of about 55 *psia* and below about 300 *psia* in **claim 13**, wherein the stripping acid gas from the acid gas-rich absorption Fluid takes place in a pressure Vessel at a pressure in excess of about 130 *psia* and below about 300 *psia* in **claim 14**, wherein the stripping acid gas from the acid gas-rich absorption Fluid takes place in a pressure Vessel at a pressure in excess of about 50 *psia* and below about 200 *psia* in **claim 15,** wherein the stripping acid gas from the acid gas-rich absorption Fluid takes place in a pressure Vessel at a pressure in excess of about 50 *psia* and below about 155 *psia* in **claim 16**, Chakravarti et al (US 6497852B2) disclose Carbon Dioxide Recovery at High Pressure (Title). Carbon dioxide is recovery from a feed stream whose pressure is up to 30 *psia* by preferentially absorbing carbon dioxide from feed stream into a liquid absorbent fluid, pressurizing and heating the resulting stream to a pressure sufficient to enable the stream to reach the top of the stripper at a pressure of **35 *psia* or greater** and the stripping carbon dioxide from stream in a stripper operating at a pressure of 35 *psia* or greater and recovering from stripper a gaseous carbon dioxide product stream having a pressure of 35 *psia* or greater (Abstract). In some preferred embodiments, the pressure in the stripper, and pressure of the gaseous carbon dioxide product stream are **up to 70 *psia*** (Col. 2, ln. 31-34). It is also illustrated in the Figure below: gaseous feed stream containing carbon dioxide; absorber 4; stripper 12; lean stream 6 - specific examples of useful alkanolamines include **monoethanolamine (primary)**, diethanolamine (secondary) and methyldiethanolamine (tertiary). Examples of useful organic amines include piperazine and pyrrolidine (Col. 3, ln. 22-26). Higher pressures in the reboiler would correspondingly increase the reboiler temperature. However, care should be taken to ensure that temperature does not exceed **much beyond** 140° C (col. 3, ln 66 – col. 4, ln 2). This CO_2 vapor would need to be compressed prior to further use or disposal. Finally for sequestration applications CO_2 would typically need to be compressed to pressures of the order of 1500 *psia* or higher (Col. 5, ln. 49-51).

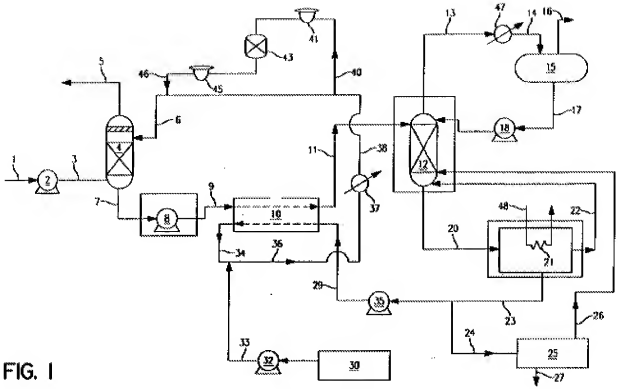

FIG. 1

Chakravarti et al (US 6497852B2) **do not teach** temperature from 294°F and below 400°F as claimed. However, reboiler temperature could reach 146° C as evidenced by Rønning et al (US 5832712A) that the absorption liquid which contains CO_2 is passed to a stripping column where the CO_2 is removed from the absorption liquid heated to a temperature of 120° -150° C (Abstract, ln 15-17). Carbon dioxide is released from **MEA (monoethanolamine)** in the temperature range of 120° - 150° C (col. 4, ln 51-52).

(3). **Claims 7** and **11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakravarti et al (US 6497852B2) in view of Iijima et al (JP 10-067994), Rønning et al (US 5832712A).

As to where at least one co-solvent for acid gases selection in **claims 7** and **11,** Chakravarti et al **do not teach** co-solvent as claimed.

However, Iijima et al (JP 10-067994) **teach** Advanced Removal of Carbon Dioxide in High-Pressure Raw Material Gas, High-Pressure Recovery and Apparatus therefor (Title). The

carbon dioxide lean solvent can also add solvents, such as N-methyl pyrrolidone and sulfolane, as occasion demands ([013], ln. 13-14).

The advantage of adding co-solvent is demanded occasionally ([013], ln. 13-14).

Therefore, it would have been obvious at time of the invention to add the co-solvent of Iijima et al for the CO_2 absorbent of Chakavarti et al in order to achieve the advantages described previously.

Response to Arguments

Applicant's arguments with respect to claim 8 with respect to the amended temperature range of reboiler have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu
Art Unit: 1776
Date: June 2, 2011

. /Duane Smith/

Supervisory Patent Examiner, Art Unit 1776